CLAIMS:

1. A fluidic device (3, 9, 10), comprising
a plurality of sample channels (35, 91, 92, 101, 102),
said sample channels (35, 90, 100) having a sample fluid inlet (36),
said sample channels (35, 91, 92, 101, 102) being adapted to be filled through said inlet (36, 90, 100) with a sample fluid to be analysed or treated in use of said device (3),
a flush fluid control means (32, 93, 103) positioned at said plurality of sample channels (35) downstream the location where the sample fluid is analysed or treated in said device (3, 9, 10),
said flush fluid control means (32, 93, 103) having flush fluid inlet means (33) and flush fluid outlet means (34) in communication with said sample channels (35), and
said flush fluid control means (32, 93, 103) being adapted to control the fluid composition (47, 50) in said plurality of sample channels.

2. Fluidic device according to claim 1, wherein said fluid device (3, 9, 10) is a microfluidic device, at least partly manufactured by micromachining methods.

3. Fluidic device according to claim 1 or 2, wherein said flush fluid control means (32) controls said flush fluid content at said channel inlet (36) by replacing a fixed amount of said sample fluid (47) in said sample channels (35, 91, 92, 101, 102) with flush fluid (50) upstream said fluid control means (32, 93, 103).

4. Fluidic device according to claims 2 to 3, wherein said control means is a cross-over channel (32).

5. Fluidic device according to claim 4, wherein the cross-over channel (32) divides two arrays (30, 31) of microchannels (35).

6. Fluidic device according to claims 1 to 5, wherein said fluid inlet and fluid outlet means of said fluid control means (32) are inlet (33) an outlet (34) channels.

7. Fluidic device according to claim 6, wherein said inlet and outlet channels comprise valve means (46, 47) for controlling flush fluid communication through said inlet (33) and fluid communication through said outlet channel (34).

8. Fluidic device according to claim 1, wherein said device comprises pressure regulating means (46, 47) for controlling flush fluid communication through said inlet (33), fluid communication through said outlet channel (34) and fluid flow through said sample channels (35, 91, 92, 101, 102).

9. Fluidic device according to any of the preceding claims, comprising at least one threshold (39) being arranged in said sample channels (35) upstream said flush fluid control means (32, 93, 103) in the fluid flow direction of said sample fluid.

10. Fluidic device according to claim 9, wherein said threshold (39) is tuneable.

11. Fluidic device according to claims 9 or 10, wherein said threshold (39) is in each of said channels is controlled by a physical constriction, a fluidophobic or hydrophobic effect, an electric field, a temperature or light excitation.

12. Fluidic device according to claims 9 to 11, wherein said threshold (39) is controlled by a common control for all channels.

13. Fluidic device according to claims 1 to 12, wherein independent sample plugs (51) are formed in said sample channels by said control means (32).

14. Fluidic device according to claims 1 to 13, wherein said flush fluid is a gas or an inert liquid.

15. Fluidic device according to any of the preceding claims, wherein said fluidic device is arranged inside a compact housing, said housing being a diagnostic cartridge.

16. Fluidic device according to claims 1 to 14, wherein said fluidic device is a diagnostic cartridge, a microfluidic chip, a lab-on-a-chip, a micro-total-analysis system, a biochip or a biosensor.

17. A method of generating independent fluid samples (51) in a fluidic device (3, 9, 10) for multichannel analysis according to claim 1, said method comprising the steps of flushing of a flush fluid control means (32, 93, 103) with flush fluid such that independent sample plugs are formed in a multiple channels (31) of said device (3), said sample plugs being separated by said flush fluid.

18. A method according to claim 17, said flush fluid control means (32) having flush fluid inlet means (33) and flush fluid outlet means (34), said method further comprising the steps of

introducing sample liquid into said device (3) through a sample fluid inlet into a plurality of channels,

transporting said sample liquid across said flush fluid control means (32) further into said channels until a threshold (39),

opening of said flush fluid inlet means (33) and flush fluid outlet means (34) by means of said valve means (46, 47),

flushing of said flush fluid control means (32) with a flush fluid,

transporting said sample liquid in said channels and said flush liquid in said flush fluid control means (32) across said flush fluid control means (32) further into said channels.

19. A method according to claim 18, wherein a plurality of consecutive independent sample fluid plugs are generated by repeating said steps of

opening of said flush fluid inlet means (33) and flush fluid outlet means (34) by means of said valve means (46, 47),

flushing of said flush fluid control means (32) with a flush fluid,

transporting said sample liquid in said channels and said flush liquid in said flush fluid control means (32) across said flush fluid control means (32) further into said channels.

20. A method according to claims 18 or 19, wherein after the step of flushing said flush fluid control means (32) with a flush fluid,

said flush-fluid inlet means (33) and flush-fluid outlet means (34) are re-closed by means of valve means (46, 47), or

said flush fluid is put under pressure for transporting said sample fluid into said channels.

21. A method according to claims 17 to 20, wherein said multichannel analysis is performed in a diagnostic cartridge, a microfluidic chip, a lab-on-a-chip, a micro-total-analysis system, a biochip or a biosensor.

22. A method according to claims 17 to 21, wherein said multichannel analysis is performed by a microfluidic device.

23. A computer-readable medium (8) having embodied thereon a computer program for processing by a computer (80) for generating independent fluid samples (51) in a fluidic device (3) for multichannel analysis according to claim 1, the computer program comprising a code segment (81) for flushing of a flush fluid control means (32) with flush fluid such that independent sample fluid plugs (51) are formed in a multichannel array (31) of said device (3), said sample plugs being separated by said flush fluid.

24. Use of the method according to claim 17 or the device according to claim 1 for fluid analysis, fluid synthesis, or the parallel synthesis of chemical compounds.